Alpha Magnetic Spectrometer
NASA / DOE

Alpha Magnetic Spectrometer
Configuration Control Board (CCB)
Minutes

National Aeronautics and
Space Administration

March 16, 2005
Building 1, Room 920L
2:30 – 4:00 pm

Attendees

CCB members and other attendees are listed in Attachment 1.

Agenda Item 1: Change Requests

- Change Request AMS-02/D-010: Baseline AMS-02 Structural Verification Plan for the Space Transportation System and the ISS
  - Missing evaluations from Irene Piatek/EA2 and ES. Chris Tutt/ESCG has spoken with Lance Mushung/ESCG and he will be sending his comments to Vince Foyt/ES.
  - Trent Martin/EA2 approved the change request.
    - If the Structures Working Group (SWG) has technical changes, then the SVP needs to come back to the CCB.
  - Chris Tutt/ESCG to send email to Trent Martin/EA2 of who he contacted with the SWG and when.
  - Mike Capell/AMS asked to include electrical bond requirements
    - Should it be in the PIH ICD?
    - Paul Nemeth/ESCG and Ross Harold/ESCG will check to if information was included in the PIH ICD
    - Bill Hungerford/AMS to provide a list of who will need to review the document
  - Change request and document were approved and signed.
  - Signed document will be uploaded into the DDMS as approved.
- Change Request AMS-02/D-012: Baseline AMS-02 Experiment/Vacuum Case (VC) Payload Integration Hardware (PIH) Interfaces

- Missing evaluations from Irene Piatek/EA2, Jack Keifenheim/KSC, and Win Reid/OZ.
- All comments that have been received have been incorporated.
- Change request and document were approved and signed.
- Signed document will be uploaded into the DDMS as approved.

Agenda Item 2: Open Paper Management Tool – Open Items Report

- OPMT attached as Attachment 2 is the updated version reflecting all updates and statuses provided at CCB.
- RIDS and action items (open and closed) for all active reviews (PDR, CDR, etc) will be added to the OPMT.
- No new actions were assigned but modifications were made to existing actions
  - Open Item 04-055: Review the composite panel strength testing results and requirements from the Structures Working Group with variability of data and relative paucity of data. Task assigned to Chris Tutt/ESCG.
    - Deneen Taylor/ES2 responded with a request for more time.
    - Chris Tutt/ESCG attempted to set-up a meeting with no response.
    - Chris Tutt/ESCG to send information on Jay Bennett/ES4 and Michael Grygier/ES to Trent Martin/EA2 and Steve Porter/EA1. Trent Martin/EA2 and Steve Porter/EA1 will be contacting the division chiefs to discuss the non-action on AMS requests.
  - Open Item 04-115: Investigate to see if we need a FEMA/CIL for AMS. If not, what are we doing in place of the FEMA/CIL? Task assigned to Paul Nemeth/ESCG.
    - Paul Nemeth/ESCG will put together a letter defining the purpose of the FEMA/CIL and what we are doing in place of the FEMA/CIL.
    - AMS is doing everything we can to assure reliability by exhaustive testing.

- Trent Martin/EA2 wants David Kaplan/NT to review plan Paul Nemeth/ESCG presented at the meeting. David Kaplan/NT to reply shortly with his review.
- Send out a copy of the action and write-up for review and ask for comments.

o Open Item 05-004: Work on closure plans for all open Boeing PEI issues. Should also include Kornel Nagy or Hung Nguyen with structures. Steve Porter/EA wants to know who the ultimate arbitrator for structures. Task assigned to Chris Tutt/ESCG.

- Boeing agreed to plan of action for on-orbit. Trying to submit model, but Boeing will not confirm what type of model they need.
- Need written approval from Boeing and verbal approval from NASA.

o Open Item AMS_02-ACOP_PDR-51: Determine with MSWG if there is a concern associated with the 4 bolt interface. Task assigned to Chris Tutt/ESCG.

- Go to a soft stow or confirm all 4 bolts installed?
- Find out requirements from the Materials Structures Working Group (MSWG).
- Chris Tutt/ESCG will contact the MSWG and see if they agree to the proposal of using soft stowage.

o Open Item AMS_02-CDR-04: AMS will provide all design and analysis data required to meet EVR requirements per SSP 57003. Task assigned to Ross Harold/ESCG and Paul Nemeth/ESCG.

- Agreement received from Boeing PEI.
- Action item was closed on March 16, 2005.

o Open Item AMS_02-CDR-05: Update SVP and complete analysis. Task assigned to Chris Tutt/ESCG.

- Based on Boeing PEI acceptance of the plan, action closed.
- Action item was closed March 2, 2005.

- Open Item AMS_02-CDR-15: Implement recommendations. Task assigned to Paul Nemeth/ESCG and Tim Urban/ESCG.
  - Waiting for formal agreement so action can be closed.
  - Action will be closed as soon as email agreement received.
- Open Item AMS_02-CDR-16: Implement recommendations. Task assigned to Paul Nemeth/ESCG and Tim Urban/ESCG.
  - Waiting for formal agreement so action can be closed.
  - Action will be closed as soon as email agreement received.
- Open Item AMS_02-CDR-17-1: Implement recommendations. Task assigned to Paul Nemeth/ESCG and Tim Urban/ESCG.
  - Waiting for formal agreement so action can be closed.
  - Action will be closed as soon as email agreement received.
- Open Item AMS_02-CDR-21: Implement recommendation. Task assigned to Paul Nemeth/ESCG and Tim Urban/ESCG.
  - Tim Urban/ESCG to follow up on this issue.
  - Action item should be closed by March 24, 2005.
- Open Item AMS_02-CDR-22: Supply EME control plan. Task assigned to Paul Nemeth/ESCG.
  - Waiting for formal agreement so action can be closed.
  - Action will be closed as soon as email agreement received.
- Open Item AMS_02-CDR-23: Implement recommendations. Task assigned to Paul Nemeth/ESCG.
  - Waiting for formal agreement so action can be closed.

- Action will be closed as soon as email agreement received.

o Open Item AMS_02-Doc_Review-67: Update Vacuum Case ICD as indicated. Task assigned to Phil Mott/ESCG.

- VC ICD change request has been approved.
- Action item was closed March 16, 2005.

Open Discussion

- There will not be a Project Tag-up meeting on March 23, 2005.
- The next CCB or Project Tag-up scheduled for March 30, 2005.

Trent Martin adjourned meeting at 3:15 pm.

Minutes Approval: _____

Attachment 1

CCB Sign-in Sheet

Alpha Magnetic Spectrometer
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Alpha Magnetic Spectrometer
Configuration Control Board (CCB)
Sign-in Sheet

National Aeronautics and
Space Administration

March 16, 2005
2:00 – 4:00 pm
Building 1, Room 920L

Position	Name	Phone Number	Signature
Chairman	Porter, Steve	281-244-7149	
Member	Martin, Trent	281-483-3296	
Member	Vaughan, Anne	281-244-0257	
Member	Conwell, J.J.	281-483-1178	
Member	Kaplan, David	281-483-3729	David Kaplan
Member	Reid, Winston	281-226-4809	
Member	Keifenheim, Jack	321-867-6028	
Member	Hungerford, Bill	281-218-7022	Bill Hungerford
Member	Nemeth, Paul	281-461-5715	
Secretary	Cox, Donna	281-461-5711	

Alpha Magnetic Spectrometer
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Alpha Magnetic Spectrometer
Configuration Control Board (CCB)
Sign-in Sheet

National Aeronautics and
Space Administration

Position	Name	Phone Number	Signature
Attendee	Arnold, Larissa	281-483-0623	
Attendee	Bailey, Chuck	281-244-5093	
Attendee	Caldwell, Steve	281-483-7766	
Attendee	Capell, Mike		On Telecon
Attendee	Clark, Craig	281-461-5378	
Attendee	Cook, Gene	281-244-8467	
Attendee	Corbin, Cheryl	281-244-1830	
Attendee	Cornwell, John	281-483-9164	
Attendee	Dennett, Peter		On Telecon
Attendee	Donahoe, Stan	281-483-4256	
Attendee	Echols, Ray	256-544-5354	
Attendee	Farner, David	281-461-5392	
Attendee	Fohey, Mike	281-461-5684	
Attendee	Gibb, Margaret	281-244-0284	
Attendee	Harold, Ross A.	281-461-5713	
Attendee	Harris, Mary	281-483-8261	
Attendee	Harris, William		
Attendee	Hill, Leland	281-461-5701	
Attendee	Jeevarajan, Judith	281-483-4528	

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Sign-in Sheet

National Aeronautics and
Space Administration

Position	Name	Phone Number	Signature
Attendee	Lear, Dana	281-483-2984	
Attendee	Lewis, Ruthan	301-286-1694	
Attendee	Miley, Bob		On Telecon
Attendee	Morgan, Susan	281-483-4935	
Attendee	Mott, Phil	281-461-5712	Phil Mott
Attendee	Munoz, Nancy	281-483-9015	
Attendee	Orndoff, Evelyne	281-483-9117	
Attendee	Petri, David	281-483-9622	
Attendee	Piatek, Irene	281-483-9043	
Attendee	Rains, George (Ed)	281-244-8111	
Attendee	Rybicki, Dan	281-244-5181	
Attendee	Sauceda, Tania	281-244-1612	
Attendee	Schoenberg, Rich	281-483-6437	
Attendee	Schwarz, Roger	281-483-2378	
Attendee	Stanford, John	281-483-1347	
Attendee	Stevenson, L. D.	281-244-8890	
Attendee	Tutt, Chris	281-461-5703	
Attendee	Urban, Tim	281-461-5702	

Alpha Magnetic Spectrometer
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Configuration Control Board (CCB)
Sign-in Sheet

National Aeronautics and
Space Administration

Position	Name	Phone Number	Signature
Attendee	Todd Cureton	483.4284	Todd Cureton
Attendee	Bruce Sommer	461-5700	
Attendee			
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Attachment 2

Open Action Items Matrix

Open Action Items Report

Open Item Number 04-046	**RID Open Date:** 8/1/2004	**RID Closure Date:**
Title:		**Affected Document:**
Intiator(s):		**Initiator(s) Phone Number:**
Description:		
RID Disposition:		**RID Status:**

Action Item Information

Action Assigned?: Yes	**Actionee(s):** Bill Hungerford/AMS Trent Martin/EA	**Phone Number(s):** 281-483-3296
Action Due Date: 7/31/2005		**Action Completion Date:**

Action: *Build an integrated logic flow, assembly, and test (LFAT Schedule?) schedule and for the payload at CERN. Include a clear plan for Quality Control and MRB Authority for the payload integration and assembly at CERN. Ensure that an iterative electrical / functional test scheme is included to ensure adequate operation of hardware / software before access to that "installed" crate or detector is no longer possible.*

Action Status:

02/09/05 - We will build an integrated plan at JSC to go through with the AMS Collaboration. The plan will have to be approved by the AMS Collaboration. The plan is to have: (1) NASA representative at CERN for the integration process and (2)NASA provide a quality representative to be at CERN at all time for quality control during integration process

01/19/05 - briefed by G. Laureti/AMS at KSC TIM; facility at Geneva looking for alternative; STA magnet test here at JSC or IBG, Aechen (proposed by K. Lubelsmeyer/AMS), or ETH Zurich; Looking into options as backup to CERN (Aguilar/AMS working the issue); T. Martin/EA wants G. Laurenti's schedule to be in scheduling format.

12/10/04 - Discuss issue at KSC TIM in January 2005; splinter meeting of detectors

11/17/04 - To be discussed at the Integration meeting being held at CERN December 7-9, 2004

08/01/04 - Plan due by 09/18/04; Questionnaire sent to detector groups to initiate process. Meeting scheduled at CERN Sept 13 and 14, chaired by Giuliano Laurenti, to consolidate and refine inputs from various detector and sub-system groups. Should result in development of preliminary LFAT Schedule for review at October TIM

Open Action Items Report

Open Item Number 04-051	**RID Open Date:** 8/1/2004	**RID Closure Date:**
Title:		**Affected Document:**
Intiator(s):		**Initiator(s) Phone Number:**
Description:		
RID Disposition:		**RID Status:**

Action Item Information

Action Assigned?: Yes	**Actionee(s):** OZ/Bob Miley	**Phone Number(s):**
Action Due Date: 6/30/2005		**Action Completion Date:**

Action: Finalize SSRMS requirements around the AMS-02

Action Status: 03/02/05 - It will be three weeks before it is known the amount of power to be provided. It will not be 3Kw. Win Reid/OZ to set up meeting with Chris Tutt/ESCG, Trent Martin/EA2, Craig Clark/ESCG, John Cornwell/EC, and Henry.

Due date for this action item was changed to June 30, 2005.

02/09/05 - ISS ICD – turning in PIA baselined first. Still other actions to be handled (3 Kw of power the station guaranteed and duration of time for fiber optic). Plan to remove the TBRs. Win Reid to check on the actions on the ISS side. Action item to be discussed at next week's tag-up meeting on February 16, 2005.

12/10/04 - ISS ICD to be released 02/05; question how to get into official documentation; New status to be provided in January

11/17/04 - Add PIRN/Waiver

09/29/04 - To be discusses at the CCB on 10/27/04

08/11/04 - Needs hazard report

08/01/04 - Plan due by 09/18/04

Open Action Items Report

Open Item Number 04-055	**RID Open Date:** 8/1/2004	**RID Closure Date:**
Title:		**Affected Document:**
Intiator(s):		**Initiator(s) Phone Number:**
Description:		
RID Disposition:		**RID Status:**

Action Item Information

Action Assigned?: Yes	**Actionee(s):** Chris Tutt/ESCG	**Phone Number(s):** 281-461-5703
Action Due Date: 1/30/2005		**Action Completion Date:**

Action: *Review the composite panel strength testing results and requirements from the Structures Working Group with variability of data and relative paucity of data.*

Action Status:

03/16/05 - Deneen Taylor/ES2 responded with a request for more time. Chris Tutt/ESCG attempted to set-up a meeting with no response. Chris Tutt/ESCG to send information on Bennett ??/?? and Michael Grygier/ES to Trent Martin/EA2 and Steve Porter/EA1. Trent Martin/EA2 and Steve Porter/EA1 will be contacting the division chiefs to discuss the non-action on AMS requests.

03/02/05 - Deneen Taylor/ES2 sending it to materials. No reply at this time.

02/09/05 - Chris Tutt/ESCG provided data to the Structures Working Group (SWG). SWG is still looking at the data and has not provided Chris Tutt/ESCG with an update. Action item status to be provided at CCB meeting on February 23, 2005.

01/19/05 - C. Tutt/LMSO received a phone call from P. Romine, there is enough concern on whether test cases run on allowable; Issue is being worked, no date given for completion

01/05/05 - Chris Tutt will get this done shortly

12/10/04 - Chris Tutt has met with Lockheed Martin SWG; acceptance needs to be by NASA SWG; requested meeting, but has received no response; send list of issues and what needs letter to Win Reid and John Stanford.

10/05/04 - Chris Tutt setting up meeting with SWG

08/01/04 - Plan due by 09/18/04

Open Action Items Report

Open Item Number 04-056	**RID Open Date:** 8/1/2004	**RID Closure Date:**
Title:		**Affected Document:**
Intiator(s):		**Initiator(s) Phone Number:**
Description:		
RID Disposition:		**RID Status:**

Action Item Information

Action Assigned?: Yes	**Actionee(s):**	Chris Tutt/ESCG Bill Hungerford/AMS Paul Nemeth/ESCG	**Phone Number(s):** 281-461-5703 281-461-5715
Action Due Date: 8/15/2005			**Action Completion Date:**

Action: Provide the plan for Surveillance of Safety Critical assembly and test steps of Collaboration Hardware.

Action Status: 02/09/05 - Mike Fohey/ESCG and David Kaplan/NT to discuss the MVP schedule. The MVP is a deliverable on the ESCG contract and is to be deliverec no later than 8 months from February 1, 2005.

Open Action Items Report

Open Item Number 04-069 **RID Open Date:** 8/4/2004 **RID Closure Date:**

Title: **Affected Document:**

Intiator(s): **Initiator(s) Phone Number:**

Description:

RID Disposition: **RID Status:**

Action Item Information

Action Assigned?: Yes **Actionee(s):** Leland Hill/ESCG
Chris Tutt/ESCG **Phone Number(s):** 281-461-5701
281-461-5703

Action Due Date: 5/1/2005 **Action Completion Date:**

Action: Coordinate closeout photo tasks; Need to verify we get closeout photos before hardware is closed up; Need update the pre-flight imagery plan

Action Status: 10/05/04- final documentation must be done after Surveillance Plan for Safety Critical Structure

09/29/04 - Draft documentation is complete

Open Action Items Report

Open Item Number 04-115 **RID Open Date:** 11/29/2004 **RID Closure Date:**

Title: **Affected Document:**

Intiator(s): **Initiator(s) Phone Number:**

Description:

RID Disposition: **RID Status:**

Action Item Information

Action Assigned?: Yes **Actionee(s):** Paul Nemeth/ESCG
Mike Fohey/ESCG **Phone Number(s):** 281-461-5715
281-461-5684

Action Due Date: 3/31/2005 **Action Completion Date:**

Action: Investigate to see if we need a FEMA/CIL for AMS. If not, what are we doing in place of the FEMA/CIL?

Action Status: 03/16/05 - Paul Nemeth/ESCG will put together a letter defining the purpose of the FEMA/CIL and what we are doing in place of the FEMA/CIL. AMS is doing everything we can to assure reliability by exhaustive testing. Trent Martin/EA2 wants David Kaplan/NT to review plan Paul Nemeth/ESCG presented at the meeting. David Kaplan/NT to reply shortly with his review. Send out a copy of the action and write-up for review and ask for comments.

02/09/05 - Paul Nemeth/ESCG will write up what the options are and what we are doing. Tim Urban/ESCG has looked at the issue and will write something up for comparison. Will need to coordinate with John Stanford and NT.

01/05/05 - presentation to be given at CCB in March 2005

12/08/04 - presentation to be given at CCB on January 5, 2005

Open Action Items Report

Open Item Number 04-117	**RID Open Date:**	**RID Closure Date:**
Title:		**Affected Document:**
Intiator(s):		**Initiator(s) Phone Number:**
Description:		
RID Disposition:		**RID Status:**

Action Item Information

Action Assigned?: Yes	**Actionee(s):** Craig Clark/ESCG Joe Burger/AMS	**Phone Number(s):** 281-461-5714
Action Due Date: 3/31/2005		**Action Completion Date:**

Action: *Extending Magnet Life - Make sure we have the capability to provide 150W of power into the cryo-coolers (-vs- the 100W nominal power).*

Action Status: *01/05/05 - Craig Clark/LMSO stated that we have the capability to run at 150W per GSFC.*

Open Action Items Report

Open Item Number 04-120	**RID Open Date:** 12/6/2004	**RID Closure Date:**
Title:		**Affected Document:**
Intiator(s):		**Initiator(s) Phone Number:**
Description:		
RID Disposition:		**RID Status:**

Action Item Information

Action Assigned?: Yes	**Actionee(s):** Leland Hill/ESCG	**Phone Number(s):** 281-461-5701
Action Due Date: 3/31/2005		**Action Completion Date:**

Action: *Work with all AMS experimenters to close out all open issues associated with the Phase II Flight Safety Review Safety Data Package.*

Action Status: *03/02/05 - Not many issues left open. In work.*

01/19/05 - Some data has been received since the October TIM and January TIM; Some data not due until March 2005; Due date was changed from 01/31/05 to 03/31/05; Final Safety Data Package due 03/08/05.

Open Action Items Report

Open Item Number 05-004	**RID Open Date:** 2/9/2005	**RID Closure Date:**
Title:		**Affected Document:**
Intiator(s):		**Initiator(s) Phone Number:**
Description:		
RID Disposition:		**RID Status:**

Action Item Information

Action Assigned?: Yes	**Actionee(s):** Chris Tutt/ESCG Vic Sanders/Boeing	**Phone Number(s):** 281-461-5703
Action Due Date: 2/23/2005		**Action Completion Date:**

Action: *Work on closure plans for all open Boeing PEI issues. Should also include Kornel Nagy or Hung Nguyen with structures. Steve Porter/EA wants to know who the ultimate arbitrator for structures.*

Action Status: *03/16/05 - Boeing agreed to plan of action for on-orbit. Trying to submit model, but Boeing will not confirm what type of model they need. Need written approval from Boeing and verbal approval from NASA.*

03/02/05 - Boeing is satisfied. Have a plan but it is not officially signed off. Working through Mike Grygier/ES2. Since there has been no response from Kornel Nagy, send an email Hung Nguyen to push Kornel Nagy's response.

Open Action Items Report

Open Item Number 05-006	**RID Open Date:** 3/2/2005	**RID Closure Date:**
Title:		**Affected Document:**
Intiator(s):		**Initiator(s) Phone Number:**
Description:		
RID Disposition:		**RID Status:**

Action Item Information

Action Assigned?: Yes	**Actionee(s):** Paul Nemeth/ESCG	**Phone Number(s):** 281-461-5715
Action Due Date: 5/31/2005		**Action Completion Date:**

Action: Hire a scheduler.

Action Status: 03/16/05 - JS employee that had originally been identified was unwilling to relocate to Houston. Requisition for the open position was input to JS syste on 3/14/05. Resume of one "qualified" candidate from MSFC has already been received. Working to set up interview.

Open Action Items Report

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-01* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *Transfer Rate Ambiguities* **Affected Document:** *ACP-RP-CGS-002*

Intiator(s): *Mike Capell/AMS* **Initiator(s) Phone Number:** *+41 22 767 4706*

Description: *Description of Problem:*
There is a lack of consistency and lack of clarity in the data rate requirements for AMS and ACOP. ACOP documents are mostly correct in showing 4Mbit/s as a requirement but this has been interpreted to mean that the AMS-02 data rate has been increased.

Recommendation:

1. *Implement a clear explaination of the data rates for ACOP and AMS-02, including expected average data rates and supported peak data rates.*

2. *Provide a simple diagram showing the AMS data source, internal buffer s (JBU) , ACOP and downlink with these data rates.*

Suggested text:
The AMS-02 experiment has been designed to meet its physics goals when producing data at an average rate of 2MBit/s. Data is produced continuously. However, the physics that will be measured is unknown, and so are the peak and average data rates -- 2Mbit/s average is the best estimate. Within AMS-02 a four-fold redundant 1GByte buffer (JBU) is provide to smooth the data flow and to allow for short term (less than an hour) interuptions in the data output from AMS, for example when the hard disk drives are being swapped within ACOP. After any such interuption, the data rate capability in ACOP must be able to make up for the lost time while not falling behind on the fresh data. Therefore ACOP should be able to process data at a rate of at least twice the average data rate from AMS, namely 4Mbit/s.

Impact if recommendation not implemented:
ACOP may meet its stated data rate cababilities but fail to properly support AMS.

Proposed Resolution:
Clarify documentation

RID Disposition: *Approved with Modification* **RID Status:** *Closure Pending Documentation*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *CGS* **Phone Number(s):**

Action Due Date: *6/1/2005* **Action Completion Date:**

Open Action Items Report

Action:

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-02* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *Incorrect Base Document for Payload Integration Agreement* **Affected Document:** *ACP-IC-CGS-001*

Intiator(s): *Mike Capell/AMS* **Initiator(s) Phone Number:** *+41 22 767 4706*

Description: *Description of Problem:*
This document was based from SSP-52000-EIA-ERP Issue A. The ISS program now requires this document be based on SSP57066.

Recommendation:
1. Recreate this document from the correct base.

2. Provide the broadest range of transportation options (STS Middeck, MPLM, ATV, Progress, Skyhook).

3. Show relationship to JSC-57113 (AMS-02 PIA) which levies ACOP requirements as well.

Impact if recommendation not implemented:
ACOP may not meet its internal requirements but not be allowed to fly.

Proposed Resolution:
Update documentation to match with current NASA requirements.

RID Disposition: *Approved* **RID Status:** *Closure Pending Documentation*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *CGS* **Phone Number(s):**

Action Due Date: *6/1/2005* **Action Completion Date:**

Action: *Update documentation*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-03* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *Project Schedule Relationship to SSP 57057 and PIM Schedule* **Affected Document:** *ACP-PL-CGS-003*

Intiator(s): *Mike Capell/AMS* **Initiator(s) Phone Number:** *+41 22 767 4706*

Description: *Description of Problem:*
It is difficult to understand the relationship to between the ACOP project schedule and SSP 57057 (and associated PIM schedule). It is not clear that the project schedule and the PIM schedule reconcile.

Recommendation:
1. Use SSP57057 nomenclature for the project schedule.

2. Reconcile milestones between the ACOP project schedule and the PIM schedule.

Impact if recommendation not implemented:
Project could misunderstand schedule requirements and work to the wrong schedule.

Proposed Resolution:
Reconcile schedules

RID Disposition: *Approved* **RID Status:** *Closure Pending Documentation*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *Peter Dennett* **Phone Number(s):**

Action Due Date: *4/21/2005* **Action Completion Date:**

Action: *Reconcile schedules with OZ.*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-04* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *Front Panel LCD Display* **Affected Document:** *ACP-SY-CGS-001*

Intiator(s): *Mike Capell/AMS* **Initiator(s) Phone Number:** *+41 22 767 4706*

Description: *Description of Problem:*
AMS-02 has a mission success motivated requirement that the crew be able to rapidly respond to AMS-02 off-nominal issues. The design detailed in this specification does not fulfil this requirement. In particular the design does not have the self-sufficient means to display ad-hoc information.

Recommendation:

1. *The AMS-02 top level functional requirements (see "ACOP Design Report" ACP-RP-CGS-003 Issue 1 Section 4.1 Page 16) should be mentioned in Section 4.2, page 17 of this document.*

2. *Any discrepancies from the AMS-02 top level functional requirements should be formally noted in ACP-SY-CGS-001.*

3. *ACP-SY-CGS-001 should specify an LCD. The LCD should be not less the 320x240 dots with 8 bits of color. The LCD should be not less then 4 inches diagonal.*

Impact if recommendation not implemented:
Failure to meet top level requirements and inability to track this failure.

Proposed Resolution:
Incorporate LCD into specification and implement

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *CGS* **Phone Number(s):**

Action Due Date: *6/1/2005* **Action Completion Date:**

Action: *Implement LCD*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-05-2* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *Clarify Software Responsibilities Between CGS, ASI, and AMS-02* **Affected Document:** *ACP-SY-CGS-001*

Intiator(s): *Mike Capell/AMS* **Initiator(s) Phone Number:** *+41 22 767 4706*

Description: *Description of Problem:*
There needs to be clarification on software responsibilities based on the delivery of application software from ASI to CGS and low level software from CGS (see ACP-PL-CGS-003 Section 2.2, Page 5).

Recommendation:

1. *The ultimate source of application software should be identified as the AMS-02 Collaboration (also in ACP-PL-CGS-003).*

2. *ACP-SQ-CGS-001 should have requirements segregated between application (AMS-02 developed /"ASI" delivered) and low level (CGS developed).*

3. *The cooperation in software development should be directly addressed in the ACP-PL-CGS-003 Section 7.2 Interfaces Management, Page 14. It would be difficult for ASI to directly participate in this loop.*

Impact if recommendation not implemented:
Failure to provide and verify software that meets requirements.

Proposed Resolution:
The aim of this document is to specify the requriements for baisc software and interfaces between application SW and basic SW. CGS will specify the proposal for requriements to be applied to the contract related to the development of the Application SW. This will include at least the document ACP-SQ-CGS-001, delivered in the PDR data package.

RID Disposition: *Approved with Modification* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *ASI* **Phone Number(s):**

Action Due Date: *6/1/2005* **Action Completion Date:**

Action: *Implement approach*

Action Status:

Open Action Items Report

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-06* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *List of Spare Parts No Longer Matches the ACOP Design* **Affected Document:** *ACP-SY-CGS-001*

Intiator(s): *Mike Capell/AMS* **Initiator(s) Phone Number:** *+41 22 767 4706*

Description: *Description of Problem:*
The list of spare parts no longer matches the ACOP design.

Recommendation:
The spare parts list should be modified as follows:

- *(2) Hard Disks*
- *(1) ACOP-SBC*
- *(1) ACOP-T101*
- *(1) ACOP-T102*
- *(1) ACOP-T103*
- *(1) ACOP-PS*
- *(1) ACOP Power cable*
- *(1) ACOP Data cable*
- *(1) Fan with mounting kit*
- *(1) Exchangable Filter, if filters are implemented.*

In general it should be noted that the exact spares to be provided will need to be adjusted if the design evolves.

Impact if recommendation not implemented:
Failure to provide useful spares.

Proposed Resolution:
Update spares list

RID Disposition: *Approved* **RID Status:** *Closure Pending Documentation*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *CGS* **Phone Number(s):**

Action Due Date: *6/1/2005* **Action Completion Date:**

Action: *Update spare parts list.*

Open Action Items Report

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-07-1* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *ACOP Hard Drive Sparing* **Affected Document:** *ACP-RP-CGS-003/Section 4.2*

Intiator(s): *Winston Reid/United Space Alliance* **Initiator(s) Phone Number:** *281-226-4809*

Description: *Description of Problem:*
The required hard drive sparing is incorrect. Paragraph 4.2 states that a set of 4 hard drives will provide 20 days of recording capability and that 20 spare drives will provide 150 days of recording capability. Dividing the 150 day goal by 20 days tells you that ACOP needs 7.5 sets of hard drives to satisfy the 150 day requirement. Since there are 4 hard drives in each set, a total of 30 spare hard drives (4x7.5) are needed to be meet the 150 day sparing goal. But since ACOP drives are swapped 4 at a time, the number of spare or stowed hard drives must be increased to 32.

Recommendation:
Properly document the number of hard drives required as logistics spares.

Impact if recommendation not implemented:
1) AMS-02 risks running out of hard drives to record data.

2) Logistics sparing directly translates into upmass/downmass and on-orbit stowage requirements that require significant lead time for planning purposes. Due to competing requirements on these constrained resources, late changes are not always accommodated.

Proposed Resolution:
Update documentation to 120 day minimum goal & add traffic model

RID Disposition: *Approved* **RID Status:** *Closure Pending Documentation*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *Peter Dennett* **Phone Number(s):**

Action Due Date: *6/1/2005* **Action Completion Date:**

Action: *Develop traffic model.*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-07-2* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *ACOP Hard Drive Sparing* **Affected Document:** *ACP-RP-CGS-003/Section 4.2*

Intiator(s): *Winston Reid/United Space Alliance* **Initiator(s) Phone Number:** *281-226-4809*

Description: *Description of Problem:*
The required hard drive sparing is incorrect. Paragraph 4.2 states that a set of 4 hard drives will provide 20 days of recording capability and that 20 spare drives will provide 150 days of recording capability. Dividing the 150 day goal by 20 days tells you that ACOP needs 7.5 sets of hard drives to satisfy the 150 day requirement. Since there are 4 hard drives in each set, a total of 30 spare hard drives (4x7.5) are needed to be meet the 150 day sparing goal. But since ACOP drives are swapped 4 at a time, the number of spare or stowed hard drives must be increased to 32.

Recommendation:
Properly document the number of hard drives required as logistics spares.

Impact if recommendation not implemented:
1) AMS-02 risks running out of hard drives to record data.

2) Logistics sparing directly translates into upmass/downmass and on-orbit stowage requirements that require significant lead time for planning purposes. Due to competing requirements on these constrained resources, late changes are not always accommodated.

Proposed Resolution:
Update documentation to 120 day minimum goal & add traffic model

RID Disposition: *Approved* **RID Status:** *Closure Pending Documentation*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *Peter Dennett* **Phone Number(s):**

Action Due Date: *6/1/2005* **Action Completion Date:**

Action: *Update documentation.*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-11-1* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *ACOP Transport Vehicle Prematurely Identified* **Affected Document:** *ACP-RP-CGS-003/Section 6.1.1*

Intiator(s): *Winston Reid/United Space Alliance* **Initiator(s) Phone Number:** *281-226-4809*

Description: *Description of Problem:*
The second sentence implies that ACOP would only be transported to orbit via Shuttle.

Recommendation:
Change ´´ACOP will be transported inside the Shuttle in power off condition´´ to ´´ACOP will be transported to orbit in a power off condiition.´´

Impact if recommendation not implemented:
The statement would remain incorrect. ACOP will be transported to orbit in an unpowered condition, however, the transport vehicle may be non-Shuttle.

Proposed Resolution:
Update document to include all possible vehicles.

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *APO-Chris Tutt* **Phone Number(s):** *281-461-5703*

Action Due Date: *3/31/2005* **Action Completion Date:**

Action: *Provide to CGS and ASI all appropriate technical requirements (structural, thermal, environmental, safety, etc - may work best as soft stow item - note that none of these can be used as a return vehicle for the ACOP assembly) for ATV, HTV, Progress, and Soyuz.*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-11-2* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *ACOP Transport Vehicle Prematurely Identified* **Affected Document:** *ACP-RP-CGS-003/Section 6.1.1*

Intiator(s): *Winston Reid/United Space Alliance* **Initiator(s) Phone Number:** *281-226-4809*

Description: *Description of Problem:*
The second sentence implies that ACOP would only be transported to orbit via Shuttle.

Recommendation:
Change ´´ACOP will be transported inside the Shuttle in power off condition´´ to ´´ACOP will be transported to orbit in a power off condiition.´´

Impact if recommendation not implemented:
The statement would remain incorrect. ACOP will be transported to orbit in an unpowered condition, however, the transport vehicle may be non-Shuttle.

Proposed Resolution:
Update document to include all possible vehicles.

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *CGS* **Phone Number(s):**

Action Due Date: *6/1/2005* **Action Completion Date:**

Action: *Update documentation.*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-14* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *ACOP Hard Drive Replacement Clarification* **Affected Document:** *ACP-RP-CGS-003/Section 10.1.2*

Intiator(s): *Winston Reid/United Space Alliance* **Initiator(s) Phone Number:** *281-226-4809*

Description: *Description of Problem:*
Sentence did not translate properly from Italian to English.

Recommendation:
Change sentence from: ´´The crew should plug out and in the 4 Hard Drives every about 20 days´´ to ´´The crew should remove 4 full hard drives and replace them with 4 empty hard drives from the logistics spares approximately every 20 days.´´

Impact if recommendation not implemented:
Requirement would remain unclear in this document.

Proposed Resolution:
Document will be updated

RID Disposition: *Approved* **RID Status:** *Closure Pending Documentation*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *CGS* **Phone Number(s):**

Action Due Date: *6/1/2005* **Action Completion Date:**

Action: *Update documentation.*

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-16 **RID Open Date:** 3/9/2005 **RID Closure Date:**

Title: EXPRESS IDD Page Reference **Affected Document:** ACP-RP-CGS-003/Section 10

Intiator(s): Winston Reid/United Space Alliance **Initiator(s) Phone Number:** 281-226-4809

Description: Description of Problem:
Many paragraphs within Section 10 contain a reference to a specific requirements page within the EXPRESS IDD. This is not a good idea because the information being referenced may move between document revisions.

Recommendation:
Instead of referencing a page, make the reference to the specific IDD paragragh number and book revision level. For example, USE: ´´SSP52000-IDD-ERP, Rev E, Figure 3-8A´´ instead of: ´´SSP52000-IDD-ERP P3-18´´.

Impact if recommendation not implemented:
Payload risks referencing wrong requirements paragraphs.

Proposed Resolution:
Document will be updated

RID Disposition: Approved **RID Status:** Closure Pending Documentation

Action Item Information

Action Assigned?: Yes **Actionee(s):** CGS **Phone Number(s):**

Action Due Date: 6/1/2005 **Action Completion Date:**

Action: Update documentation.

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-19-1 **RID Open Date:** 3/9/2005 **RID Closure Date:**

Title: ACOP Bolt Analysis Requirements **Affected Document:** ACP-RP-CGS-005

Intiator(s): Bruce Sommer/ESCG **Initiator(s) Phone Number:** 281-461-5700

Description: Description of Problem:
Bolt analysis in report does not follow NASA´s guidelines for bolt analysis as specified in NSTS 08307 ´´Space Shuttle Criteria for Preloaded Bolts´´.

Recommendation:
Revise ACOP bolt analysis to meet the requirements specified in NSTS 08307.

RID Disposition: Approved **RID Status:** Open

Action Item Information

Action Assigned?: Yes **Actionee(s):** APO-Bruce Sommer/ESCG **Phone Number(s):** 281-461-5700

Action Due Date: 3/15/2005 **Action Completion Date:**

Action: Provide specification to CGS and ASI.

Action Status: 03/17/05 - As per his action Bruce Sommer/ESCG sent the NASA requirements for preloaded bolts to Fabio Bracciaferri/ASI.He stated that NASA has been enforcing the criteria laid out in this document more strictly than in the past years. Bruce Sommer/ESCG had sent this document along with some MathCAD files to Riccardo Zambra/CCS a couple of weeks prior to the ACOP PDR.

A copy of the emails and report are on file.

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-19-2* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *ACOP Bolt Analysis Requirements* **Affected Document:** *ACP-RP-CGS-005*

Intiator(s): *Bruce Sommer/ESCG* **Initiator(s) Phone Number:** *281-461-5700*

Description: *Description of Problem:*
Bolt analysis in report does not follow NASA´s guidelines for bolt analysis as specified in NSTS 08307 ´´Space Shuttle Criteria for Preloaded Bolts´´.

Recommendation:
Revise ACOP bolt analysis to meet the requirements specified in NSTS 08307.

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *CGS* **Phone Number(s):**

Action Due Date: *6/1/2005* **Action Completion Date:**

Action: *Update bolt analysis*

Action Status:

Open Action Items Report

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-23* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *Command APIDs* **Affected Document:** *ACP-SP-CGS-001/Section 6.3.2*

Intiator(s): *Richard Weaver/Teledyne Brown Engineering* **Initiator(s) Phone Number:** *256-961-2004*

Description: *Description of Problem:*

- ACP-SQ-CGS-001 Paragraph 1.1 and 1.2 describe an EXPRESS Payload Application running on the EXPRESS Laptop Computer (ELC). There is no mention of a ACOP Payload application for a Portable Computer System (PCS) (i.e. computer deployed on the PL MDM 1553 bus or the C&C 1553 bus).

- Section 6.3.2 in the ACOP Interface Specification ICD list APIDs for PCS to LAP@ & LAP4 ISPRs. These APIDs are not needed.

- Section 6.3.2 in the ACOP Interface Specification ICD list APIDs for MCC-H to LAP@ & LAP4 ISPRs. These APIDs are not needed because commands to US Payload ISPRs utilize POIC APIDs.

- In general, ACOP has not been assigned to a ISPR location, therefore APID deffinition is premature at this stage

Recommendation:
Delete APID table until manifested ISPR location can be determined. PEI will assign.

Impact if recommendation not implemented:
Incorrect command APID information resulting in loss of ground command capability.

Proposed Resolution:
We will implement the recommendation.

RID Disposition: *Approved* **RID Status:** *Closure Pending Documentation*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *CGS*
Peter Dennett
Phone Number(s):

Action Due Date: *6/1/2005* **Action Completion Date:**

Action: *Update documents.*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-24* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *Acoustic Verification Requirement and Testing Clarification* **Affected Document:** *ACP-PL-CGS-004/Section 4.3 and 6*

Intiator(s): *Eric Phillips/Boeing PEI* **Initiator(s) Phone Number:** *281-226-6367*

Description: *Description of Problem:*
´´Acoustic noise measurement will be performed on the FM only if QM results are marginal´´. SSP 57000 requirements (Paragraph 4.3.12.3.3.1) states that acoustic measurements shall be made using actual flight equipment even though prototype or qualification units have been tested previously. This is due to the fact that hardware, such as cooling fans, can have varying noise signatures even though part numbers are identical.

Recommendation:
Perform acoustic testing on Flight Model per requirement SSP 57000 paragraph 4.3.12.3.3.1 unless a repeatable test on qualification unit shows consistency that payload is an insignificant noise source.

Impact if recommendation not implemented:
If qualification model is close to or at the requirement level and the flight model is not tested, there is a risk that the Flight Model will exceed the individual payload requirement due to variations in noise of the sub componets (i.e. fans).

Team Member's Proposed Resolution:
SSP-52000-IDD-ERP Table 4-IX is the sub-rack level specification. Testing will be done on the QM. Testing should be done on all flight models unless the noise source is an insignificant noise. SSP-57000 describes an insignificant noise source as 37 dBA at 2 feet away in all directions.

RID Disposition: *Approved with Modification* **RID Status:** *Closure Pending Documentation*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *CGS* **Phone Number(s):**

Action Due Date: *6/1/2005* **Action Completion Date:**

Action: *Update documentation to match this approach.*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-26* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *Incorrect Version of SSP 50184* **Affected Document:** *ACP-SP-CGS-001 (2.1) / ACP-PL-C*

Intiator(s): *Vergel Romero/Boeing PEI* **Initiator(s) Phone Number:** *281-226-4498*

Description: *Description of Problem:*
Applicable Documents Item 9 is refererring to Feb 1996 version of SSP 50184.

Recommendation:
Change to SSP 50184 Revision B Dated May 25, 2001

Impact if recommendation not implemented:
ACOP will be using an outdated version of the document which was changed considerably.

Proposed Resolution:
Will update document.

RID Disposition: *Approved* **RID Status:** *Closure Pending Documentation*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *CGS* **Phone Number(s):**

Action Due Date: *6/1/2005* **Action Completion Date:**

Action: *Update documentation.*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-28* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *Unknown J7 UIP Location* **Affected Document:** *Multiple Documents*

Intiator(s): *Vergel Romero/Boeing PEI* **Initiator(s) Phone Number:** *281-226-4498*

Description: *Documents and Sections Affected:*
ACP-SP-CGS-001 (6.1.3 fourth bullet) / ACP-RP-CGS-003 (5.4.2 fourth bullet) / ACP-RP-CGS-004 (5.4.2 fourth bullet)

Description of Problem:
These sections contain the following statement: ´´TX and RX under TESS (complete mission) and TX under MELFI (as initiation location, may have to move).´´ The actual locations of J7 connectors that will be provided to ACOP for use are still unknown.

Recommendation:
Indicate in the statement that since topology is not finalized, actual locations of J7 connectors are unknown and the length of fiber optic cable may vary.

Impact if recommendation not implemented:
If the fiber optic cable is designed before J7 Locations are known, cable may be too short.

Proposed Resolution:
The TESS location was provided to us by the ISS during the initial assessment several years ago. The second site was not finalized. We will remove references to specific J7 connections. However, the documentation will state that we need 2 J7 connectors.

RID Disposition: *Approved* **RID Status:** *Closure Pending Documentation*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *CGS*
Peter Dennett
Phone Number(s):

Action Due Date: *6/1/2005* **Action Completion Date:**

Action: *Update documentation.*

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-29 **RID Open Date:** 3/9/2005 **RID Closure Date:**

Title: ACOP Compatibility with EXPRESS Rack Interface **Affected Document:** ACP-SP-CGS-001/Section 2.1 and 5

Intiator(s): Henry Hoang/Boeing PEI **Initiator(s) Phone Number:** 281-226-6054

Description: Description of Problem:

2.1 Applicable Documents

Comments: SSP 30238 and 30237 need to be included in the "Applicable Documents".

Consequences: ACOP will not compatible with EXPRESS Rack interface and Space Station.

5.3.1.1 Power Interface

1. Comments: Electromagnetic Interference (EMI) and Electrostatic Discharge (ESD) are not addressed in section 5.3.1 "Electrical Interfaces" of this document.

   Suggestion: Add section 7.0 of SSP 52000-IDD-ERP to paragraph 5.3.1.1 of this document.

   Consequences: ACOP will not compatible with EXPRESS Rack interface.

2. Provide 28Vdc Interface Block Diagram between the ACOP and EXPRESS including the cable and connector part numbers.

Proposed Resolution:
SSP 30238 and 30237 are called out by SSP 52000-IDD-ERP, so they do not have to be specifically called out by the ACOP team Section 5.3.1.1 will be updated as recommended.

RID Disposition: Approved with Modification **RID Status:** Closure Pending Documentation

Action Item Information

Action Assigned?: Yes **Actionee(s):** CGS **Phone Number(s):**

Action Due Date: 6/1/2005 **Action Completion Date:**

Action: Update documents as recommended.

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-36* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *SSP 52050 Reference* **Affected Document:** *ACP-RP_CGS-003/Section 2.1*

Intiator(s): *Joseph Breit/IPIC PSI* **Initiator(s) Phone Number:** *281-226-4435*

Description: *Description of Problem:*
Applicable documents lists an outdated version of SSP 52050.

Recommendation:
Replace reference to SSP 52050 Rev D with SSP 52050 Rev E (November 12, 2002). (Also needs to be updated in ACP-SP-CGS-001 & ACP-SQ-CGS-001.)

Impact if recommendation not implemented:
ACOP will be designed to out of date requirements.

Proposed Resolution:
Update references

RID Disposition: *Approved* **RID Status:** *Closure Pending Documentation*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *CGS*
ASI
Phone Number(s):

Action Due Date: *6/1/2005* **Action Completion Date:**

Action: *Update documents.*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-37* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *HRDL Minimum Packet Size* **Affected Document:** *ACP-RP-CGS-003/Section 5.3.2*

Intiator(s): *Joseph Breit/IPIC PSI* **Initiator(s) Phone Number:** *281-226-4435*

Description: *Description of Problem:*
The document states that ´´Transmitter capable to transmit frame from 1 to 4096 bytes length.´´ While this may be true, the HRDL CCSDS packet size requirement (SSP 52050 {3.4.2.4.1.2-A}) is that packets will be from 100 and 4096 bytes length (inclusive). This requirement should be noted to prevent any confusion regarding actual HRDL packet size requirement. (This statement also appears in ACP-SQ-CGS-001, paragraph 2.6.4.

Recommendation:
Note the actual HRDL packet size requirement.

Impact if recommendation not implemented:
Possible confusion regarding HRDL packet size requirement.

Proposed Resolution:
Add comment to document that states HRDL packet size limit

RID Disposition: *Approved* **RID Status:** *Closure Pending Documentation*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *Peter Dennett* **Phone Number(s):**

Action Due Date: *6/1/2005* **Action Completion Date:**

Action: *Update document.*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-38* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *Minimum Ku-band Packet Length* **Affected Document:** *ACP-SP-CGS-001/Table 6.3*

Intiator(s): *Joseph Breit/IPIC PSI* **Initiator(s) Phone Number:** *281-226-4435*

Description: *Description of Problem:*
The table defines the minimum packet length (PacketLen) for frames transmitted by AMS as 0 bytes. For Ku-band packets the minimum packet length is 93 bytes. (See SSP 41158 Table 4.1.1.1-1).

Recommendation:
Change the minimum packet length to 93 bytes.

Impact if recommendation not implemented:
Incorrectly sized Ku-band packets.

Proposed Resolution:
Implement recommendation

RID Disposition: *Approved* **RID Status:** *Closure Pending Documentation*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *Peter Dennett* **Phone Number(s):**

Action Due Date: *6/1/2005* **Action Completion Date:**

Action: *Update document.*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-39* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *Secondary CCSDS Header Requirements for Telemetry* **Affected Document:** *ACP-SP-CGS-001/Table 6-4*

Intiator(s): *Joseph Breit/IPIC PSI* **Initiator(s) Phone Number:** *281-226-4435*

Description: *Description of Problem:*
The table, in the PacketID2 row, contains a note that ´´Per SSP57002C this is Data Cycle Counter´´. Since AMS telemetry will not be processed by the HOSC, there is no requirement for AMS to implement a Data Cycle Counter in the Secondary Header. (See SSP 52050 Appendix D, paragraph E.)

Recommendation:
Remove the note.

Impact if recommendation not implemented:
Possible confusion over CCSDS Header requirements.

RID Disposition: *Disapproved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *Peter Dennett* **Phone Number(s):**

Action Due Date: *6/1/2005* **Action Completion Date:**

Action: *Will remove note from document.*

Action Status:

Open Action Items Report

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-40-1* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *ER3 APIDs* **Affected Document:** *ACP-SP-CGS-001/Section 6.3.2*

Intiator(s): *Joseph Breit/IPIC PSI* **Initiator(s) Phone Number:** *281-226-4435*

Description: *Description of Problem:*
The APIDs listed for ACOP in ER3 are incorrect (except for the MCC-H to ACOP in ER3 APID, which is correct). This is actually my fault, as an email I sent to Peter Dennett with assigned APID numbers contained cut and paste errors for the ER3 (LAB1P4) locations.

Recommendation:
The correct APIDs are:

- *121 - POIC to ACOP in ER3 (LAB1P4)*
- *221 - PCS/P1 to ACOP in ER3 (LAB1P4)*
- *321 - PCS/P2 to ACOP in ER3 (LAB1P4)*
- *421 - PCS/P3 to ACOP in ER3 (LAB1P4)*
- *521 - PCS/P4 to ACOP in ER3 (LAB1P4)*
- *621 - PCS/P5 to ACOP in ER3 (LAB1P4)*

Impact if recommendation not implemented:
Improperly routed commands.

Proposed Resolution:
Update your list.

RID Disposition: *Approved* **RID Status:** *Closure Pending Documentation*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *Peter Dennett* **Phone Number(s):**

Action Due Date: *3/20/2005* **Action Completion Date:**

Open Action Items Report

Action:

Action Status:

Open Action Items Report

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-40-2* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *ER3 APIDs* **Affected Document:** *ACP-SP-CGS-001/Section 6.3.2*

Intiator(s): *Joseph Breit/IPIC PSI* **Initiator(s) Phone Number:** *281-226-4435*

Description: *Description of Problem:*
The APIDs listed for ACOP in ER3 are incorrect (except for the MCC-H to ACOP in ER3 APID, which is correct). This is actually my fault, as an email I sent to Peter Dennett with assigned APID numbers contained cut and paste errors for the ER3 (LAB1P4) locations.

Recommendation:
The correct APIDs are:

- *121 - POIC to ACOP in ER3 (LAB1P4)*
- *221 - PCS/P1 to ACOP in ER3 (LAB1P4)*
- *321 - PCS/P2 to ACOP in ER3 (LAB1P4)*
- *421 - PCS/P3 to ACOP in ER3 (LAB1P4)*
- *521 - PCS/P4 to ACOP in ER3 (LAB1P4)*
- *621 - PCS/P5 to ACOP in ER3 (LAB1P4)*

Impact if recommendation not implemented:
Improperly routed commands.

Proposed Resolution:
Update your list.

RID Disposition: *Approved* **RID Status:** *Closure Pending Documentation*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *Joseph Breit/IPIC PSI* **Phone Number(s):** *281-226-4435*

Action Due Date: *4/15/2005* **Action Completion Date:**

Open Action Items Report

Action:

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-41* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *ISS Program Assigned APIDs* **Affected Document:** *ACP-SP-CGS-001/Section 6.3.2*

Intiator(s): *Joseph Breit/IPIC PSI* **Initiator(s) Phone Number:** *281-226-4435*

Description: *Description of Problem:*
The document states ´´The ISS program has assigned the following values to AMS-02: APIDs: 974-983.´´ These values were originally assigned to AMS by PSI, but conflict with the desired AMS usage as documented in Table 6-6. PSI will update ISS program documentation (D684-11372-01) to agree with Table 6-6.

Recommendation:
Remove the statement in quotes above.

Impact if recommendation not implemented:
Confusion over which Ku-band APIDs have been assigned to AMS & ACOP.

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *Peter Dennett* **Phone Number(s):**

Action Due Date: *6/1/2005* **Action Completion Date:**

Action: *Will confirm with initiator if it is okay to roll this RID in with AMS_02-ACOP_PDR-40.*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-42* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *Incorrect Requirement Trace for SRD-3.1.13-060* **Affected Document:** *ACP-SQ-CGS-001/Section 3.1.1.3*

Intiator(s): *Joseph Breit/IPIC PSI* **Initiator(s) Phone Number:** *281-226-4435*

Description: *Description of Problem:*
The requirements trace for SRD-3.1.13-060 incorrectly references ACP-SP-CGS-001 section 6.3.3.3.9.1. The correct reference should be to section 6.3.3.9.1.

Recommendation:
Correct the reference.

Impact if recommendation not implemented:
Broken requirements traceability.

Proposed Resolution:
Will update

RID Disposition: *Approved* **RID Status:** *Closure Pending Documentation*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *CGS* **Phone Number(s):**

Action Due Date: *6/1/2005* **Action Completion Date:**

Action: *Update document.*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-43* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *No Traceability to ISS Requirements* **Affected Document:** *ACP-SQ-CGS-001/Paragraphs 3 &*

Intiator(s): *Joseph Breit/IPIC PSI* **Initiator(s) Phone Number:** *281-226-4435*

Description: *Description of Problem:*
The SW Requirement Document provides no traceability to ISS requirements.

Recommendation:
Update sections 3 & 4 to provide traceability from AMS/ACOP project requirements to ISS requirements.

Impact if recommendation not implemented:
Impossible to assess AMS/ACOP understanding of ISS interface requirements.

Proposed Resolution:
Update as recommended and develop a Software Verification Plan based on SSP-52000-PVP and SSP-52050 (for HRDL only).

RID Disposition: *Approved with Modification* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *CGS* **Phone Number(s):**

Action Due Date: *6/1/2005* **Action Completion Date:**

Action: *Update as recommended and develop a Software Verification Plan based on SSP-52000-PVP and SSP-52050 (for HRDL only).*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-45* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *Spare Slot in Thermal Model* **Affected Document:** *ACP-RP-CGS-003*

Intiator(s): *Mike Capell/AMS* **Initiator(s) Phone Number:** *+41 22 767 4706*

Description: *Description of Problem:*
ACOP front panel HRDL connector is proposed to contain 2 Tx and 1 Rx fibers. This requires a Y cable which is unnecessarily complicated.

Recommendation:
Implement 2 HRDL connectors.

Impact if recommendation is not implemented:
Any change in HDRL connections within US lab will result in suboptimal cabling.

Proposed Resolution:
The front panel space is limited and junction will be made near by.

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *CSIST*
CGS
Phone Number(s):

Action Due Date: *6/1/2005* **Action Completion Date:**

Action: *Update model and documentation for future work.*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-48-1* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *Face Plate Connector Protection* **Affected Document:** *N/A*

Intiator(s): *John Stanford/NT* **Initiator(s) Phone Number:** *281-483-1347*

Description: *Description of Problem:*
Determine what loads (bump, kick, incidential) unprotected connectors will sustain (power, data and fiber optics).

Recommendation:
Determine current loads for standard ISS connectors. Perform analysis for fiber optics.

Proposed Resolution:
PE&I should provide the requirement for the generic power and data connectors for kick loads. ACOP team will determine the best way to apply these loads to the fiber connector.

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *Norman Schmoeker/Boeing PEI* **Phone Number(s):** *256-961-2386*

Action Due Date: *3/17/2005* **Action Completion Date:**

Action: *Provide kick loads for standard connectors.*

Action Status: *03/17/05 - Norman Schmoeker/Boeing PEI responded that a 50 lb kick load is required on an exposed utility line per Table 3.1.1.3-1 of SSP 57000 and/or Table 4-VII of SSP 52000. Winston Reid/OZ requested this item be closed.*

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-48-2* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *Face Plate Connector Protection* **Affected Document:** *N/A*

Intiator(s): *John Stanford/NT* **Initiator(s) Phone Number:** *281-483-1347*

Description: *Description of Problem:*
Determine what loads (bump, kick, incidential) unprotected connectors will sustain (power, data and fiber optics).

Recommendation:
Determine current loads for standard ISS connectors. Perform analysis for fiber optics.

Proposed Resolution:
PE&I should provide the requirement for the generic power and data connectors for kick loads. ACOP team will determine the best way to apply these loads to the fiber connector.

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *CGS* **Phone Number(s):**

Action Due Date: *6/1/2005* **Action Completion Date:**

Action: *Determine best way to apply kick loads for fiber connector and complete analysis.*

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-50-1 **RID Open Date:** 3/9/2005 **RID Closure Date:**

Title: Protection for Fiber Optic Cable **Affected Document:** N/A

Intiator(s): John Stanford/NT **Initiator(s) Phone Number:** 281-483-1347

Description: Description of Problem:

1. Define the length (or approximate length) of the fiber optic cable.

2. Determine what protection should be provided for the fiber optic cable, including special provisions, and procedures.

3. Determine special safety precautions.

4. Determine additional weight requirements (weight of protection material) based on protection strategies.

Proposed Resolution:
We agree that there is a potential issue. OZ will help us to define the length. Protection issue must be taken to safety panel.

RID Disposition: Approved **RID Status:** Open

Action Item Information

Action Assigned?: Yes **Actionee(s):** Vergel Romero/Boeing PEI **Phone Number(s):** 281-226-4498

Action Due Date: 4/15/2005 **Action Completion Date:**

Action: Determine location and routing of cables.

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-50-2* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *Protection for Fiber Optic Cable* **Affected Document:** *N/A*

Intiator(s): *John Stanford/NT* **Initiator(s) Phone Number:** *281-483-1347*

Description: *Description of Problem:*

1. Define the length (or approximate length) of the fiber optic cable.

2. Determine what protection should be provided for the fiber optic cable, including special provisions, and procedures.

3. Determine special safety precautions.

4. Determine additional weight requirements (weight of protection material) based on protection strategies.

Proposed Resolution:
We agree that there is a potential issue. OZ will help us to define the length. Protection issue must be taken to safety panel.

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *APO* **Phone Number(s):**

Action Due Date: *6/1/2005* **Action Completion Date:**

Action: *Coordinate with OZ and safety panel regarding routing and protection for cables.*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-51* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *Fail Safe Analysis* **Affected Document:** *Structural Documents*

Intiator(s): *Trent Martin/EA2* **Initiator(s) Phone Number:** *281-483-3296*

Description: *Description of Problem:*
ACOP Team should coordinate with STS SWG or MSWG to determine if fail safe analysis must be performed on the 4 bolt interface when mounted in a rack for launch.

Recommendation:
Coordinate the issue.

Proposed Resolution:
Fail safe analysis will be completed on all bolts for CDR. However, there may be an issue associated with these bolts since they have been considered a mechanism in the past.

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *APO-Chris Tutt* **Phone Number(s):**

Action Due Date: *3/31/2005* **Action Completion Date:**

Action: *Determine with MSWG if there is a concern.*

Action Status: *03/16/05 - Go to a soft stow or confirm all 4 bolts installed? Find out requirements from the Materials Structures Working Group (MSWG). Chris Tutt/ESCG will contact the MSWG and see if they agree to the proposal of using soft stowage.*

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-53* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *Factors of Safety* **Affected Document:** *Structures Documents*

Intiator(s): *Trent Martin/EA2* **Initiator(s) Phone Number:** *281-483-3296*

Description: *Description of Problem:*
ACOP team should coordinate with STS SWG and Boeing to ensure that verification by analysis with FoSY=1.25 and FoSU=2.0 (as specified in SSP-52000 IDD-EPR, Table 4-IIC and 4-IIA) is acceptable.

Recommendation:
Coordinate with SWG and Boeing.

Proposed Resolution:
Will coordinate

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *APO-Chris Tutt* **Phone Number(s):**

Action Due Date: *4/15/2005* **Action Completion Date:**

Action: *Coordinate with SWG.*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-54-1* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *Correction of Applicable Documents* **Affected Document:** *Various*

Intiator(s): *Leland Hill/ESCG* **Initiator(s) Phone Number:** *281-461-5710*

Description: *Description of Problem:*
ACOP PDR documentation refenrences an out of date document for the control of stress corrosion cracking. MSFC-SPEC-522B is used, this document has been replaced by MSFC-STD-3029, ´´Guidelines or the Selection of Metallic Materials for Stress Corrosion Cracking Resistance in Sodium Chloride Environments´´.

Recommendation:
Change all refernces of MSFC-SPEC-522B to MSFC-STD-3029.

Impact if recommendation not implemented:
Possible non-compliance with updated standards.

Proposed Resolution:
Update the document.

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *APO-Leland Hill/ESCG* **Phone Number(s):**

Action Due Date: *3/17/2005* **Action Completion Date:**

Action: *Provide new specification.*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-54-2* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *Correction of Applicable Documents* **Affected Document:** *Various*

Intiator(s): *Leland Hill/ESCG* **Initiator(s) Phone Number:** *281-461-5710*

Description: *Description of Problem:*
ACOP PDR documentation refenrences an out of date document for the control of stress corrosion cracking. MSFC-SPEC-522B is used, this document has been replaced by MSFC-STD-3029, ´´Guidelines or the Selection of Metallic Materials for Stress Corrosion Cracking Resistance in Sodium Chloride Environments´´.

Recommendation:
Change all refernces of MSFC-SPEC-522B to MSFC-STD-3029.

Impact if recommendation not implemented:
Possible non-compliance with updated standards.

Proposed Resolution:
Update the document.

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *CGS* **Phone Number(s):**

Action Due Date: *6/1/2005* **Action Completion Date:**

Action: *Update documents.*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-56* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *EMC Acceptance Testing* **Affected Document:** *Verification Presentation*

Intiator(s): *Tim Urban/ESCG* **Initiator(s) Phone Number:** *281-461-5702*

Description: *Description of Problem:*
The presentation states that EMC Acceptance Testing for FMs be emissions only and TO BE CONFIRMED.

Recommendation:
Urban will work with EV4 to confirm this.

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *APO-Tim Urban* **Phone Number(s):**

Action Due Date: *4/15/2005* **Action Completion Date:**

Action: *Coordinate.*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-57-2* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *Cabling for ACOP* **Affected Document:** *Avionics Presentation*

Intiator(s): *Steve Porter/EA1* **Initiator(s) Phone Number:** *281-483-7149*

Description: *Description of Problem:*
Power and Data cables for ACOP to be supplied by NASA as GFE? Need answer soon, and need to know if equivalent training models will be supplied. Need to determine number that should be provided by customer.

Recommendation:
Define supplier.

Proposed Resolution:
All flight power and data cables will be provided. They will be in place based on the topology at the time. In addition, NASA will provide the front panel connector as well. All ground hardware must be provided by ACOP team.

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *Win Reid/OZ* **Phone Number(s):** *281-226-4809*

Action Due Date: *4/15/2005* **Action Completion Date:**

Action: *Provide all drawings necessary to develop ground hardware for necessary cables and connectors.*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-ACOP_PDR-57-3* **RID Open Date:** *3/9/2005* **RID Closure Date:**

Title: *Cabling for ACOP* **Affected Document:** *Avionics Presentation*

Intiator(s): *Steve Porter/EA1* **Initiator(s) Phone Number:** *281-483-7149*

Description: *Description of Problem:*
Power and Data cables for ACOP to be supplied by NASA as GFE? Need answer soon, and need to know if equivalent training models will be supplied. Need to determine number that should be provided by customer.

Recommendation:
Define supplier.

Proposed Resolution:
All flight power and data cables will be provided. They will be in place based on the topology at the time. In addition, NASA will provide the front panel connector as well. All ground hardware must be provided by ACOP team.

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *Win Reid/OZ* **Phone Number(s):** *281-226-4809*

Action Due Date: *8/1/2005* **Action Completion Date:**

Action: *Provide all cables and connectors required for flight hardware.*

Action Status:

Open Action Items Report

Open Item Number AMS_02-CDR-01 **RID Open Date:** 5/1/2003 **RID Closure Date:**

Title: AMS-CDR-1-10: Lack of Safety Information/ Documentation for the Thermal Control System (TCS) **Affected Document:** JSC 28792

Intiator(s): H. Flynn/NASA-JSC **Initiator(s) Phone Number:** 281-483-1198

Description: From the limited information provided in Table E2, it is not possible to determine the safety requirements compliance of the TCS. Missing information includes: a system schematic, quality and type of working fluid, brief explanation(s) of the subsystem Maximum Design Pressure (MDP) determinations, itemized list of each part number/component, etc

RID Disposition: Approved **RID Status:** Closure Pending Documentation

Action Item Information

Action Assigned?: Yes **Actionee(s):** Chris Tutt/ESCG **Phone Number(s):** 281-461-5703

Action Due Date: 3/31/2005 **Action Completion Date:**

Action: Provide information in Phase II Safety Data Package and SVP will be updated.

Action Status: 03/02/05 - Make sure Howard Flynn is on the distribution for the Thermal CDR package. Chris Tutt/ESCG to get with Howard Flynn to discuss changes

01/19/05 - Due date changed from 01/30/05 to 03/31/05.

Open Action Items Report

Open Item Number *AMS_02-CDR-06* **RID Open Date:** *5/1/2003* **RID Closure Date:**

Title: *AMS-CDR-1-17: Meteoroid/Orbital Debris Shielding* **Affected Document:** *AMS-02 CDR Version 2*

Intiator(s): *E. Christiansen/NASA* **Initiator(s) Phone Number:** *281-483-5311*

Description: *Shielding from meteoroid/debris impact is inadequate to meet protection requirements. Shielding of pressurized vessels on AMS-02 such as the vacuum case and TRD (as well as any other pressure vessel) is required to prevent catastrophic rupture of these tanks in the event of meteoroid/debris impact which would release high-velocity fragments creating a potentially serious safety issue for on-board crew. The assessed probability of no penetration (PNP) using specified environment models is 0.97 which is far below the specified 0.997 PNP requirement. Updating ballistic limit equations and models as described in the forward work plan does not appear adequate to show compliance with requirements. Additional or significantly enhanced shielding will likely be necessary to meet safety requirements.*

RID Disposition: *Approved* **RID Status:** *Open - Deferred to next cycle review*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *Dana Lear/ESCG* **Phone Number(s):** *281-483-2998*

Action Due Date: *7/1/2006* **Action Completion Date:**

Action: *Complete analysis and coordinate design of debris shields. To be completed by Phase III Safety.*

Action Status: *02/09/05 - Chris Tutt/ESCG sent an email to Dana Lear/ESCG requesting a letter from Eric Christiansen/KX with the requirements and his signature.*

01/19/05 - L. Hill/LMSO to get in touch with D. Lear/LMSO to discuss what L. Hill/LMSO needs for Phase II. C. Tutt/LMSO, P. Mott/LMSO, & R. Harold/LMSO need to be involved. T. Martin/EA stated that anything pressure safety critical needs to be covered.

Open Action Items Report

Open Item Number *AMS_02-CDR-08* **RID Open Date:** *5/1/2003* **RID Closure Date:**

Title: *AMS-CDR-2-07: Bolt in Sloppy Holes Assured to Take Shear* **Affected Document:** *N/A*

Intiator(s): *B. Ritter/GSFC* **Initiator(s) Phone Number:** *301-286-9022*

Description: *Bolts attaching the support ring to the conical flange were assumed to transfer shear, even though they are in sloppy holes this is non-conservative.*

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *Chris Tutt/ESCG* **Phone Number(s):** *281-461-5703*

Action Due Date: *5/31/2005* **Action Completion Date:**

Action: *Work with SWG to resolve concerns with compliance with NASA-STD-08307, including bolts in sloppy holes being assumed to take shear.*

Action Status: *02/09/05 - Action item due date was changed to May 31, 2005. Bolt analysis was done to Lockheed Martin standards. Structures Working Group (SWG) has new standards. Currently looking to see how many interfaces have issues and what needs to be done. Action item was changed from 'Work bolt concerns with the SWG.' to 'Work with SWG to resolve concerns with compliance with NASA-STD-08307, including bolts in sloppy holes being assumed to take shear.'*

Open Action Items Report

Open Item Number *AMS_02-CDR-09* **RID Open Date:** *5/1/2003* **RID Closure Date:**

Title: *AMS-CDR-2-15: Missing Documents - Structural Analysis* **Affected Document:** *N/A*

Intiator(s): *Murthy Pinnamaneni Structures/Boeing* **Initiator(s) Phone Number:** *281-226-5665*

Description: *The following items were not available in the Data Package: design load factors, dynamic analysis procedure and results. From 2.2.1, AMS Report Outline.doc, Magnetic Strap Analysis and the Coupled Loads Analysis, which are identified to be in ´´separate sections.´´ Reports/documents that include: Dynamic Loads Analysis Description; Payload/Shuttle Interface Loads; Trunnion Deflection; Trunion Misalignment Loads: and Uncertainty Factors Used in the Analysis.*

RID Disposition: *Approved* **RID Status:** *Closure Pending Documentation*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *Chris Tutt/ESCG* **Phone Number(s):** *281-461-5703*

Action Due Date: *7/1/2006* **Action Completion Date:**

Action: *Update stress report and dynamics analyses reports. To be completed by Phase III Safety Data Pack.*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-CDR-12* **RID Open Date:** *5/1/2003* **RID Closure Date:**

Title: *AMS-CDR-4-18: Presentation Issues* **Affected Document:** *Avionics & ACOP Presentations*

Intiator(s): *H. Hoang/PEI*
J. Fu/PEO
Initiator(s) Phone Number: *281-226-6054*

Description: *The presentation for avionics is not adequate for documentation purpose to show compliance with SSP 57003 requirements.*

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *Tim Urban/ESCG* **Phone Number(s):** *281-461-5702*

Action Due Date: *3/31/2005* **Action Completion Date:**

Action: *Supply document listing EMI/electrical specs.*

Action Status: *02/09/05 - Try to get initiator's approval to merge this CDR action item with AMS-CDR-4-20 (OPMT action item AMS_02-CDR-13 by next CCB. Action item due date was changed to March 31, 2005.*

01/05/05 - Paul Nemeth/LMSO to ask initiator if this RID can be rolled into RID AMS-CDR-4-18 and Open Action Item AMS_02-CDR-13.

Open Action Items Report

Open Item Number *AMS_02-CDR-13* **RID Open Date:** *5/1/2003* **RID Closure Date:**

Title: *AMS-CDR-4-20: Power Compatibility and EMC Testing* **Affected Document:** *Avionics Overview*

Intiator(s): *H. Hoang/PEI*
J. Fu/PEO
Initiator(s) Phone Number: *281-226-6054*

Description: *The EME Control Plan (or equivalent) used to establish the plan for how AMS will be compatible with the ISS EMI requirements is lacking in the CDR package.*

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *Tim Urban/ESCG* **Phone Number(s):** *281-461-5702*

Action Due Date: *3/31/2005* **Action Completion Date:**

Action: *Supply EME control plan.*

Action Status: *02/09/05 - Try to get initiator's approval to merge this CDR action item with AMS-CDR-1-18 (OPMT action item AMS_02-CDR-12 by next CCB. Action item due date was changed to March 31, 2005.*

01/05/05 - Tim Urban/LMSO to provide status March 2005.

Open Action Items Report

Open Item Number *AMS_02-CDR-14* **RID Open Date:** *5/1/2003* **RID Closure Date:**

Title: *AMS-CDR-4-24: No Cable List and Derating Analysis of Cables* **Affected Document:** *N/A*

Intiator(s): *D. Beverly/EEE* **Initiator(s) Phone Number:** *281-483-0250*

Description: *There is no evidence of wiring or external cable list. The derating of the wire and cables has not been performed.*

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *Dewey Nguyen/ESCG*
Tim Urban/ESCG
Phone Number(s): *281-461-5681*
281-461-5702

Action Due Date: *10/30/2004* **Action Completion Date:**

Action: *Supply wire list and derating details.*

Action Status: *02/09/05 - Dewey Nguyen/ESCG has parts list but it is more complex than needed. Distilling and derating list in work. Next status date is March 31, 2005.*

01/05/05 - Changes have been submitted and is under review by Shuttle Avionics Integration.

Open Action Items Report

Open Item Number *AMS_02-CDR-15* **RID Open Date:** *5/1/2003* **RID Closure Date:**

Title: *AMS-CDR-4-25: Connector Designator in AMS-02 Wiring Diagram* **Affected Document:** *SIG39136082*

Intiator(s): *Y. Jaurigue/AG-92-J34B* **Initiator(s) Phone Number:** *281-226-5634*

Description: *I/F Panel A P6/J6 should be P7/J7 to interface from the Standard Switch Panel (SSP), using the standard mixed cargo harness, to AMS-02 control electronics per earlier agreement between the customer & USA/NASA (´´Proposed STS cabling requirements for AMS-02´´ agreed to October 30, 2001: Danny Irvin, Mariella Hartgerink, Michael Gerlach, and Ed Walters).*

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *Paul Nemeth/ESCG*
Tim Urban/ESCG
Phone Number(s): *281-461-5715*
281-461-5702

Action Due Date: *10/30/2004* **Action Completion Date:**

Action: *Implement recommendation.*

Action Status: *03/16/05 - Waiting for formal agreement so action can be closed. Action will be closed as soon as email agreement received.*

03/16/05 - An E-mail was sent to Y. Jaurigue to formally close out Alpha Magnetic Spectrometer RID No. AMS-CDR-4-25. Drawing SIG39136083 has been updated with the red-lined recommendations. This drawing is available for your further review, if required. Otherwise, please reply to all with your concurrence.

02/09/05 - Waiting for Boeing import/export approval. Gene Cook/OZ requested a couple of days to work this issue.

01/05/05 - Changes have been submitted and is under review by Shuttle Avionics Integration.

10/05/04 - Paul Nemeth to check on status of action

Open Action Items Report

Open Action Items Report

Open Item Number *AMS_02-CDR-16* **RID Open Date:** *5/1/2003* **RID Closure Date:**

Title: *AMS-CDR-4-26: AMS-02 Wiring Schematic* **Affected Document:** *SIG39136082*

Intiator(s): *Y. Jaurigue/AG-92-J34B* **Initiator(s) Phone Number:** *281-226-5634*

Description: *1. On sheet 3, i/f panel a connector p6/j6 should be p7/j7 to interface to the ssp via smch cabling per earlier agreement (´´proposed sts cabling requirement for ams-02´´ agreed in october 30, 2001: danny irvin, mariella hartgerink, michael gerlach, and ed walters). Also the emc classification for interface wiring through j6/p6 appears to be rf. Change the shielded pair wires to twisted pair wires for eo, ho, or ml class wiring - where appropriate. Redlines will be given @ ams-02 cdr avionics splinter.*

2. On sheet 3, the interface wiring through i/f panel a connector p5/j5 has two return line when there is only one available on p5 pin 35. Also, the 3 discrete output low signals from the mdm pf1 are available on pda connector p5 pins 32, 33 and 34.

3. On sheet 3, the interface wiring through i/f panel a connector j4/p4 is missing a pair of shielded ground wires for rs-422 #1 and #2. Pin 9 of pda connector p4 is assigned for rs-422 #2 gnd and pin 10 of pda connector p4 is for rs422 #1.

4. On sheet 3, interface wiring from ams-02 rs-422 #1 and #2 through i/f panel a connector j4/p4 to pdip2 p103 / j103 is different from the ´´proposed sts cabling requirement for ams-02´´ provided to paul nemeth via e-mail from d. Irvin on 12/07/2001 and boeing control schematic vs72-config 1 last revised on 11/24/2002. A unique cable will have to be built to support ams-02 rf requirements.

5. This drawing should show the ams-02/gfe cable required to provide connectivity between ams-02 rs-422 service and t-0 connector j59.

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *Paul Nemeth/ESCG*
Tim Urban/ESCG
Phone Number(s): *281-461-5715*
281-461-5702

Action Due Date: *10/30/2004* **Action Completion Date:**

Action: *Implement recommendation.*

Action Status: *03/16/05 - Waiting for formal agreement so action can be closed. Action will be closed as soon as email agreement received.*

03/16/05 -Tim Urban/ESCG replied that there was a mistake in his notes. He will provide Yvonne Jaurigue/Boeing a copy of SIG39136082.

03/16/05 - Yvonne Jaurigue/Boeing replied stating that RID No. AMS-CDR-4-25 is against document SIG39136082. She did not concur because she has not seen updates to this drawing to verify that the recommendation has been implemented. She requested a copy of the update to SIG39136082 to

support closeout of this RID.

03/16/05 - An E-mail was sent to Y. Jaurigue to formally close out Alpha Magnetic Spectrometer RID No. AMS-CDR-4-25. Drawing SIG39136083 has been updated with the red-lined recommendations. This drawing is available for your further review, if required. Otherwise, please reply to all with your concurrence.

02/09/05 - Waiting for Boeing import/export approval. Gene Cook/OZ requested a couple of days to work this issue.

01/05/05 - Changes have been submitted

Open Action Items Report

Open Item Number AMS_02-CDR-17-1 **RID Open Date:** 5/1/2003 **RID Closure Date:**

Title: AMS-CDR-4-28: SPHe Electronics to I/F Panel A, GPC Cable Assembly, W11 **Affected Document:** SEG39136103

Intiator(s): Y. Jaurigue/AG-92-J34B **Initiator(s) Phone Number:** 281-226-5634

Description: Sheet 2 of the above documents has two return lines when there is only one available on J5 mating Connector P5 Pin 35. Interface from the MDM PF1 which provides 3 discrete output low signals to the AMS-02 control electronics are available on connector P5 Pins 32, 33, and 34.

RID Disposition: Approved **RID Status:** Open

Action Item Information

Action Assigned?: Yes **Actionee(s):** Dewey Nguyen/ESCG
Tim Urban/ESCG **Phone Number(s):** 281-461-5681
281-461-5702

Action Due Date: 1/31/2005 **Action Completion Date:**

Action: Implement recommendation.

Action Status: 03/16/05 - Waiting for formal agreement so action can be closed. Action will be closed as soon as email agreement received.

03/16/05 - An E-mail was sent to the initiator to formally close out Alpha Magnetic Spectrometer RID No. AMS-CDR-4-28. Drawing SEG39136103 has been updated with the red-lined recommendations. This drawing is available for your further review, if required. Otherwise, please reply to all with your concurrence.

02/09/05 - Waiting for Boeing import/export approval. Gene Cook/OZ requested a couple of days to work this issue.

01/05/05 - Changes have been submitted and is under review by Shuttle Avionics Integration.

Open Action Items Report

Open Item Number *AMS_02-CDR-17-2* **RID Open Date:** *5/1/2003* **RID Closure Date:**

Title: *AMS-CDR-4-28: SPHe Electronics to I/F Panel A, GPC Cable Assembly, W11* **Affected Document:** *SEG39136103*

Intiator(s): *Y. Jaurigue/AG-92-J34B* **Initiator(s) Phone Number:** *281-226-5634*

Description: *Sheet 2 of the above documents has two return lines when there is only one available on J5 mating Connector P5 Pin 35. Interface from the MDM PF1 which provides 3 discrete output low signals to the AMS-02 control electronics are available on connector P5 Pins 32, 33, and 34.*

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *Steve Harrison/SCL* **Phone Number(s):**

Action Due Date: *1/31/2005* **Action Completion Date:**

Action: *Interface definition for control electronics to Vacuum Vent Valve*

Action Status:

Open Action Items Report

Open Item Number *AMS_02-CDR-21* **RID Open Date:** *5/1/2003* **RID Closure Date:**

Title: *AMS-CDR-4-32: Missing Documents - Avionics* **Affected Document:** *N/A*

Intiator(s): *Y. Jaurigue/AG-92-J34B* **Initiator(s) Phone Number:** *281-226-5634*

Description: *From the Flight Avionics Drawing Index, the following items were not available for review in the data package: 39136117 ROEU Connector Panel (Panel A), 39136118 ROEU Connector Panel Bracket (EW, YJ).*

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *Paul Nemeth/ESCG*
Tim Urban/ESCG
Phone Number(s): *281-461-5715*
281-461-5702

Action Due Date: *11/15/2004* **Action Completion Date:**

Action: *Implement recommendation.*

Action Status: *03/16/05 - Tim Urban/ESCG to follow up on this issue. Action item should be closed by March 24, 2005.*

01/05/05 - Changes have been submitted and is under review by Shuttle Avionics Integration.

11/18 - check status of action item on 11/29/04

Open Action Items Report

Open Item Number *AMS_02-CDR-22* **RID Open Date:** *5/1/2003* **RID Closure Date:**

Title: *AMS-CDR-4-33: RS422 DDRS-02/PDIP Cable Assembly* **Affected Document:** *SED39136111*

Intiator(s): *Y. Jaurigue/AG-92-J34B* **Initiator(s) Phone Number:** *281-226-5634*

Description: *1. The ´´GND´´ Pin for PDIP2 on connector P105 will mate with connector J105 pin 7.*

2. Please see RID (boeing tracking number) ´´Boeing-14 RID AFD AMS-02 wiring Schematic´´ against SID39136110. The communication flow in the above document is unclear via the end to end interface nomenclatures. The RS-422 transmit and receive signal can be misinterpreted by the payload (AMS-02) and result in a last minute payload wiring.

Please note there is a concern regarding the second RS-422 interface from PDIP2 P105 to PDIP1 j4 which can potentially interfere with a shared use of the ku-band signal processor. It is preferred that only the required signal interface to PDIP1 J4 is used. If the high data rate digital data input of the ku-band signal processor is required per SIG39136083, use connector J4 (mating connector for P4) on PDIP1 Pin 15 and 16.

RID Disposition: **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *Paul Nemeth/ESCG* **Phone Number(s):** *281-461-5715*

Action Due Date: *11/30/2004* **Action Completion Date:**

Action: *Supply EME control plan.*

Action Status: *03/16/05 - Waiting for formal agreement so action can be closed. Action will be closed as soon as email agreement received.*

03/16/05 - An E-mail was sent to the initiator to formally close out Alpha Magnetic Spectrometer RID No. AMS-CDR-4-33. Drawing SEG39136111 has been updated with the red-lined recommendations. This drawing is available for your further review, if required. The intiator was requested to reply to all with her concurrence.

02/09/05 - Waiting for Boeing import/export approval. Gene Cook/OZ requested a couple of days to work this issue.

01/05/05 - Changes have been submitted and is under review by Shuttle Avionics Integration.

11/18 - check status of action item on 11/29/04

Open Action Items Report

Open Action Items Report

Open Item Number *AMS_02-CDR-23* **RID Open Date:** *5/1/2003* **RID Closure Date:**

Title: *AMS-CDR-4-34: RS422 T-0/PDIP Cable Assembly* **Affected Document:** *SED39136112*

Intiator(s): *Y. Jaurigue/AG-92-J34B* **Initiator(s) Phone Number:** *281-226-5634*

Description: *1. The ´´GND´´ Pin for PDIP2 on connector P105 will mate with connector J105 Pin 7. Also, the gnd wire routed to connector P4 is inconsistence with drawing SID39136110, which routes the same wire to P103.*

2. Please see rid for SID39136110. The communication flow in the above document is unclear via the end to end interface nomenclatures. The RS-422 transmit and receive signal can be misinterpreted by the payload (AMS-02) and result in a last minute payload wiring.

Please note there is a concern regarding the second RS-422 interface from PDIP2 P105 to PDIP1 J4 which can potentially interfere with a shared use of the ku-band signal processor. It is preferred that only the required signal interface to PDIP1 J4 is used. If the high data rate digital data input of the ku-band signal processor is required per SIG39136083, use connector J4 (mating connector for P4) on PDIP1 Pin 15 and 16.

Also, it is recommended that pin to pin interface from PDIP2 P105 to P103 be as follows:

PDIP2 P105 - 3, 7, 6, 5, 12, 13, 10, 9, 2, 1

PDIP P103 - 3, 7, 13, 12, 5, 6, 10, 9, 2, 1

RID Disposition: *Approved* **RID Status:** *Open*

Action Item Information

Action Assigned?: *Yes* **Actionee(s):** *Paul Nemeth/ESCG* **Phone Number(s):** *281-461-5715*

Action Due Date: *10/30/2004* **Action Completion Date:**

Action: *Implement recommendation.*

Action Status: *03/16/05 - Waiting for formal agreement so action can be closed. Action will be closed as soon as email agreement received.*

03/16/05 - An E-mail was sent to the initiator to formally close out Alpha Magnetic Spectrometer RID No. AMS-CDR-4-34. Drawing SEG39136112 has been updated with the red-lined recommendations. This drawing is available for your further review, if required. The initiator was requested to reply to all with her concurrence.

02/09/05 - Waiting for Boeing import/export approval. Gene Cook/OZ requested a couple of days to work this issue.

01/05/05 - Changes have been submitted and is under review by Shuttle Avionics Integration.

11/18 - check status of action item on 11/29/04

Open Action Items Report